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ABSTRACT

This paper summarizes the findings of a 1976 national survey on usage of paper-to-paper photocopying machines in the U.S. libraries, which was conducted by King Research, Inc. for the National Commission on Libraries and Information Science, the National Science Foundation, and the National Commission on New Technological Uses of Copyrighted Works (CONTU). The survey sampled 370 public, academic, special, and federal libraries to represent a population of 21,280 libraries. An analysis of interlibrary loan requests from the Minnesota Interlibrary Telecommunications Exchange (MINITEX) was also part of the study. The report presents data on the number and type of photocopy machines in U.S. libraries and the volume of photocopying of library material by type of library; type of transaction, e.g., fulfilling an interlibrary loan request; and type of material copied. Secondly, data on the volume of photocopying of serials in U.S. libraries is provided, broken down by copyright status of serial, type of library, and type of transaction. Eleven graphs and charts illustrate findings of the study. Figures for distribution of photocopying across libraries indicate that a minority of libraries account for a majority of photocopying. The report concludes with discussion of possible copyright royalty payment mechanisms based on the study findings. (Author/ESR)

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The Relationship Between Library Photocopying Volume and the Feasibility of a Royalty Payment Mechanism

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of the American Society
for Information Science,
October 27-28, 1977

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Note: Opinions and conclusions reported in this paper are those of King Research, Inc., and do not necessarily reflect the opinions, conclusions, or recommendations of the National Commission on Libraries and Information Science, the National Science Foundation, or the National Commission on New Technological Uses of Copyrighted Works.

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SUMMARY

This paper summarizes some findings of a recent national survey of U.S. libraries, plus the analysis of interlibrary loan requests from MINITEX, the Minnesota Interlibrary Telecommunications Exchange[1]. 370 libraries were sampled to represent a population of 21,280 U.S. libraries. These libraries then cooperated in collecting data over several weeks during 1976 which was then analyzed to estimate the national volume of library photocopying. In the light of these and other data, several alternative royalty payments were analyzed.

[1] King Research, Inc., Library Photocopying in the United States and Its Implications for the Development of a Copyright Royalty Payment Mechanism. Rockville, Md.: King Research, Inc., 1977.

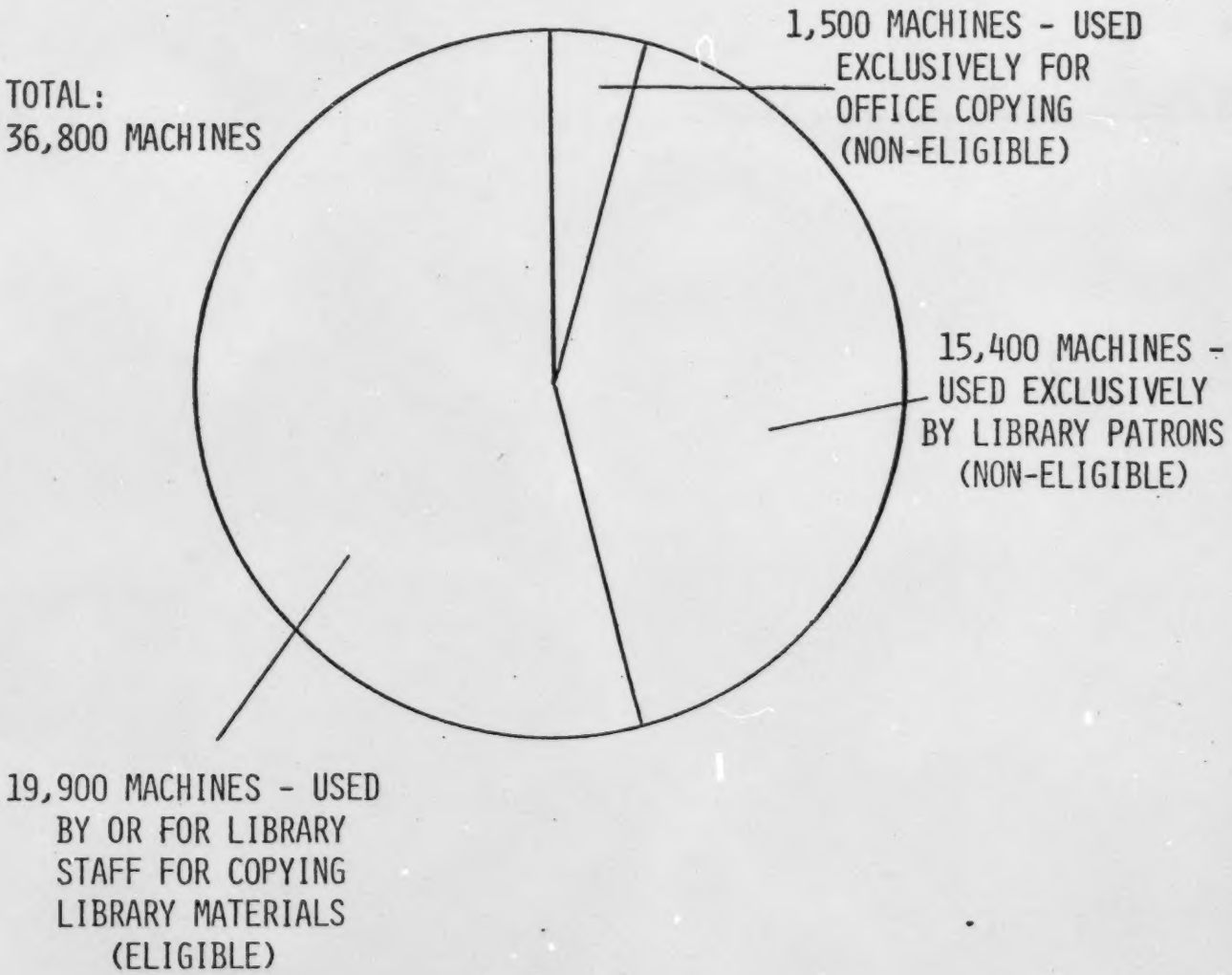
Figure 1 illustrates the focus of our study: paper-to-paper photocopying machines in U.S. libraries. We estimate that in 1976 there were approximately 36,800 paper-to-paper photocopying machines in U.S. Public, Academic, Special, and Federal libraries. Not all of these were relevant to our study. Approximately 1,500 machines are used exclusively for copying internal documents such as memos, correspondence, catalog cards, brochures, and the like. These are not directly relevant to the copyright question. Next, approximately 15,400 machines, or approximately 42%, are used exclusively by library patrons; examples of these are the unsupervised coin-operated machines. These were excluded from our data collection under terms of our study contract, and they are not considered relevant here to the copyright question from the standpoint of library royalty payments. This leaves 19,900 machines - 54% of the machines - which may be used by or for library staff for the photocopying of library materials. Notice we say "may," since some of these machines may also be used for copying non-library materials, and they may also be used, in some cases, by library patrons for copying library materials, as is the case with smaller libraries where a single machine is shared by staff and patrons.

Figure 2 illustrates the number of machines per each type of library. At the top is given the number of all machines per library for each library type. Academic libraries have the largest average, 3.7 machines per library or library system. This is accounted for chiefly by the comparatively large number of unsupervised or coin-operated machines in Academic libraries. Special libraries have the lowest number of machines per library, 1.1. We should note here that a significant number of Special and Federal libraries reported having zero machines of their own, relying instead on their parent institutions' machines for the photocopying of library materials.

When we exclude unsupervised machines and machines used exclusively for non-library material photocopying, a category we have called "relevant machines" is created, as shown by the bottom bar for each library type. U.S. libraries average about 1 relevant machine per library, ranging from 1.2 for Academic libraries to .8 for Special libraries.

FIGURE 1

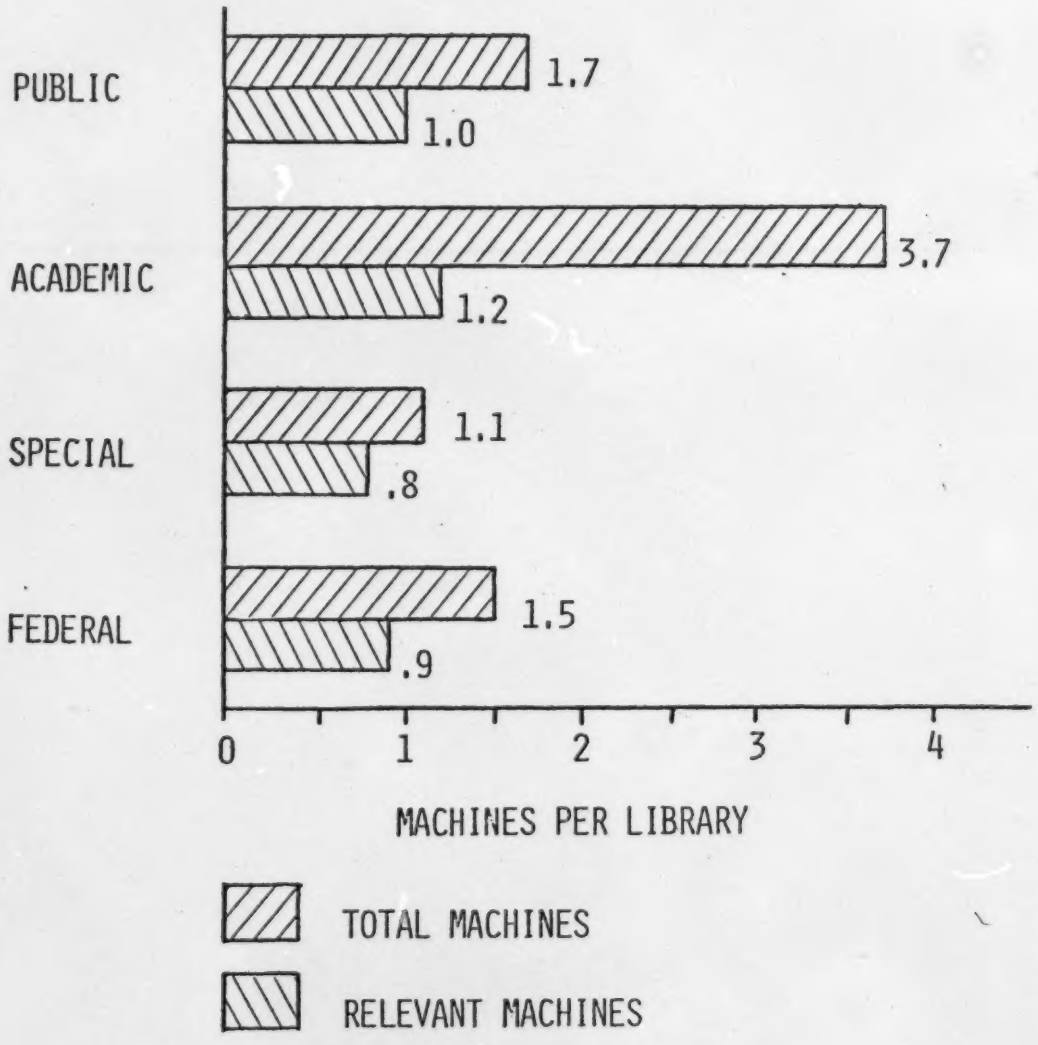
TOTAL PAPER-TO-PAPER PHOTOCOPYING MACHINES
IN U.S. LIBRARIES, BY TYPE OF MACHINE (1976)


TOTAL:
36,800 MACHINES
1,500 MACHINES - USED EXCLUSIVELY FOR OFFICE COPYING (NON-ELIGIBLE)
15,400 MACHINES - USED EXCLUSIVELY BY LIBRARY PATRONS (NON-ELIGIBLE)
19,900 MACHINES - USED BY OR FOR LIBRARY STAFF FOR COPYING LIBRARY MATERIALS (ELIGIBLE)

SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY.

FIGURE 2

MACHINES PER LIBRARY
BY TYPE OF LIBRARY (1976)



SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY.

One method of comparing libraries' photocopying volume is to compare exposures per machine and exposures per library. Photocopying exposures oftentimes are used to calculate monthly rental or lease bills, so these figures are readily available. Figure 3 shows photocopy exposures on a "per library" and a "per machine" basis. On an annual exposures per library basis, Academic libraries are most active; recall that they also had the largest number of photocopying machines per library, 3.7. They are followed by Federal libraries, with 246,000 exposures per library, then by Special and finally Public libraries.

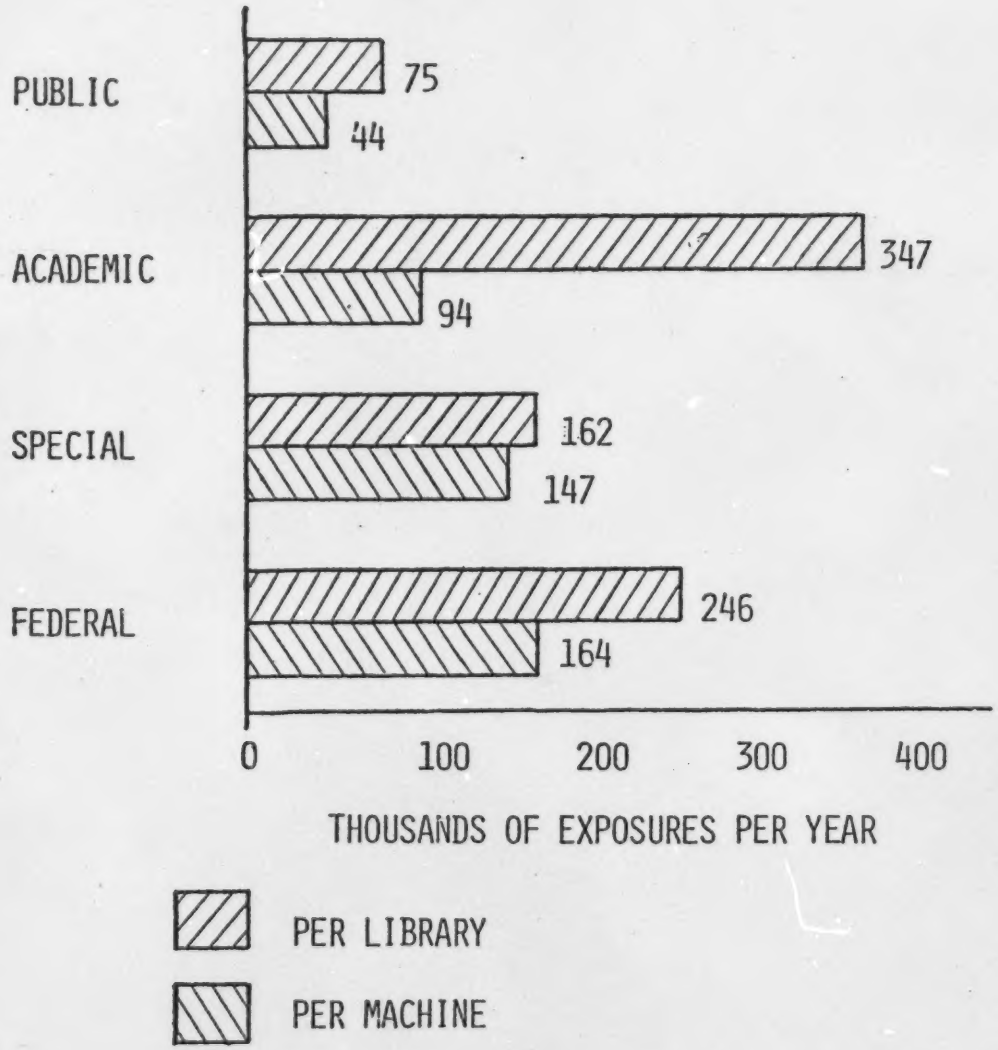
Calculating exposures per machine, a somewhat different picture emerges. Federal libraries, influenced by the large National libraries with their highly organized photocopying operations, have the highest exposures per machine figure, 164,000. They are followed by Special libraries (147,000), then by Academic and Public libraries (94,000 and 44,000 exposures per machine per year, respectively.)

However, exposures per library or exposures per machine is a fairly gross comparative measure for copyright purposes. The figures just mentioned include numerous exposures made by library patrons, and also exposures made of non-library materials, such as correspondence and other internal documents. Also, gross exposure measures give no indication of the number of times individual items are photocopied, nor do they give any idea of the length of individual items photocopied.

Figure 4 illustrates the volume of photocopying of library materials in terms of photocopy items, irrespective of length. Note that a photocopy item could be one page long, or ten pages long. We see here that Public libraries account for 64.3 million photocopy items of library materials per year in the United States. This is 56% of the photocopying of library materials. Public libraries are followed by Special libraries with 23%, then Academic and Federal with 15% and 6% respectively. Obviously what is at work here is the large number of Public libraries and library systems in the United States, a large proportion of them being very small libraries and library systems. Individually, they account for relatively little photocopying of library materials, but together, their annual volume is impressive, as indicated by Figure 4.

FIGURE 3

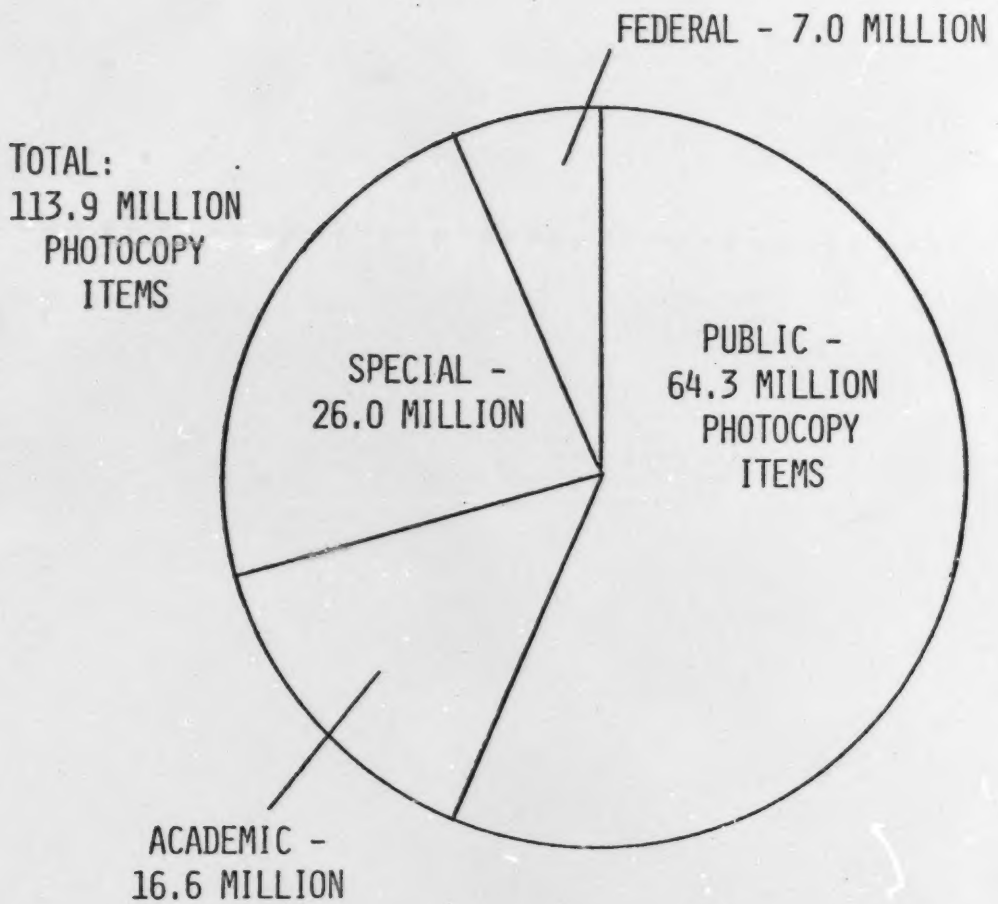
EXPOSURES PER LIBRARY AND
EXPOSURES PER MACHINE (1976)



SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY.

FIGURE 4

NUMBER OF PHOTOCOPY ITEMS OF LIBRARY MATERIALS BY TYPE OF LIBRARY (1976)



SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY.

Figure 5 shows these 113.9 million photocopy items of library materials broken down by type of transaction. Photocopy items made for local users account for 76.1 million, or 67%, of library materials photocopied by library staff. Local users are either library patrons - students, teachers, the general public - or library staff, making copies for staff use or replacement purposes.

The next largest category is "intrasystem loan," accounting for 27.3 million, or 24%, of library material photocopy items. These are photocopy items made by a library for other libraries or branches within the same system, for example for another library on campus or for a city branch library. We were somewhat surprised by the large volume of intrasystem photocopying, since so much controversy has centered around interlibrary loan, the transmission of photocopy items between separate libraries or library systems.

The smallest category here is interlibrary loan, with only 10.5 million, or 9%, of the library materials photocopy items. As we will see later, however, it is not the interlibrary loan photocopy items made by a library, but the interlibrary loan serial photocopy items requested by a library which count.

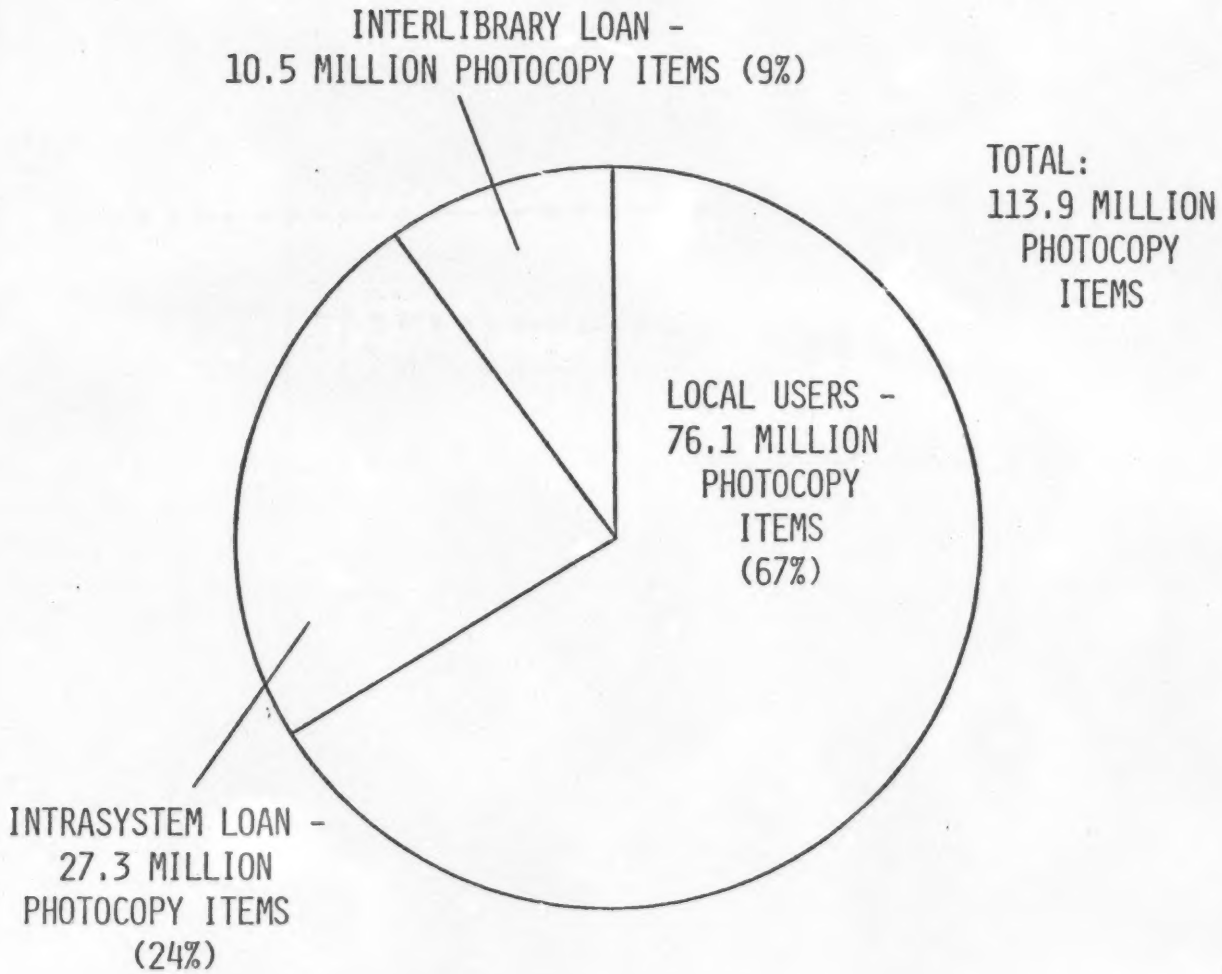
Finally, we should break down these 113.9 million photocopy items by the type of library material photocopied. Figure 6 shows that the single largest category of library material photocopying by library staff is not books or serials, but "other materials," such as technical reports, pamphlets, clippings, annual reports, and other miscellaneous library material. These account for 50.8 million, or 45% of all library material photocopy items.

The next largest category is Serials - that is journals, magazines, newspapers, and newsletters - with 48.2 million, or 42% of the photocopying. The smallest category of photocopying is Books and Monographs, with 14.9 million, or 13%, of all photocopy items.

Thus far, we really haven't said anything about the copyright status of the materials being photocopied, which is obviously relevant to royalty payments. However, we can still offer some preliminary conclusions in this regard:

FIGURE 5

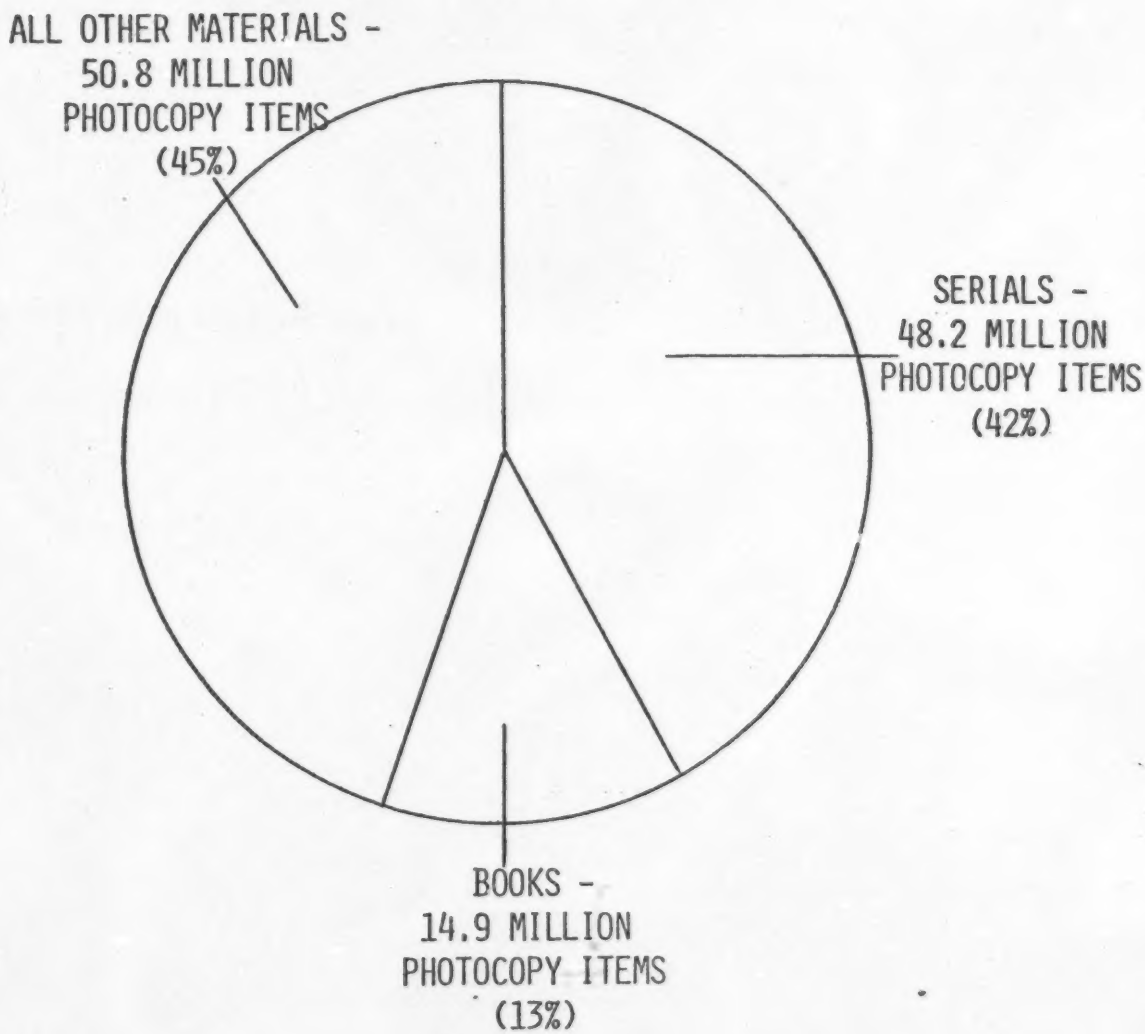
NUMBER OF PHOTOCOPY ITEMS OF LIBRARY MATERIALS
BY TYPE OF TRANSACTION (1976)



SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY.

FIGURE 6

NUMBER OF PHOTOCOPY ITEMS OF LIBRARY MATERIALS BY TYPE OF MATERIAL (1976)



SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY.

- There is a significant proportion of machines in U.S. libraries which do not produce photocopy items potentially eligible for royalty payments. A payment mechanism must take this into account.

- On the average, only one machine per library or library system is potentially eligible for generating eligible photocopy items.

- Many libraries, especially smaller ones, do not control the financial records for the machines they use for photocopying library materials.

- Interlibrary loan accounts for a comparatively minor proportion of library material photocopying.

- Less than half of the photocopy items produced are made from serials.

These conclusions lead us to the following statements:

- Eligible photocopying is concentrated among a few libraries.

- The actual number of machines which would need to be monitored by a royalty payment mechanism are a little more than half of the total.

- Many (smaller) libraries do not have exclusive control over their machines, therefore, some alternative payment mechanisms might have to deal with libraries' parent institutions.

- A royalty payment mechanism may have to distinguish between materials photocopied on the same machine which are and are not eligible for royalty payment.

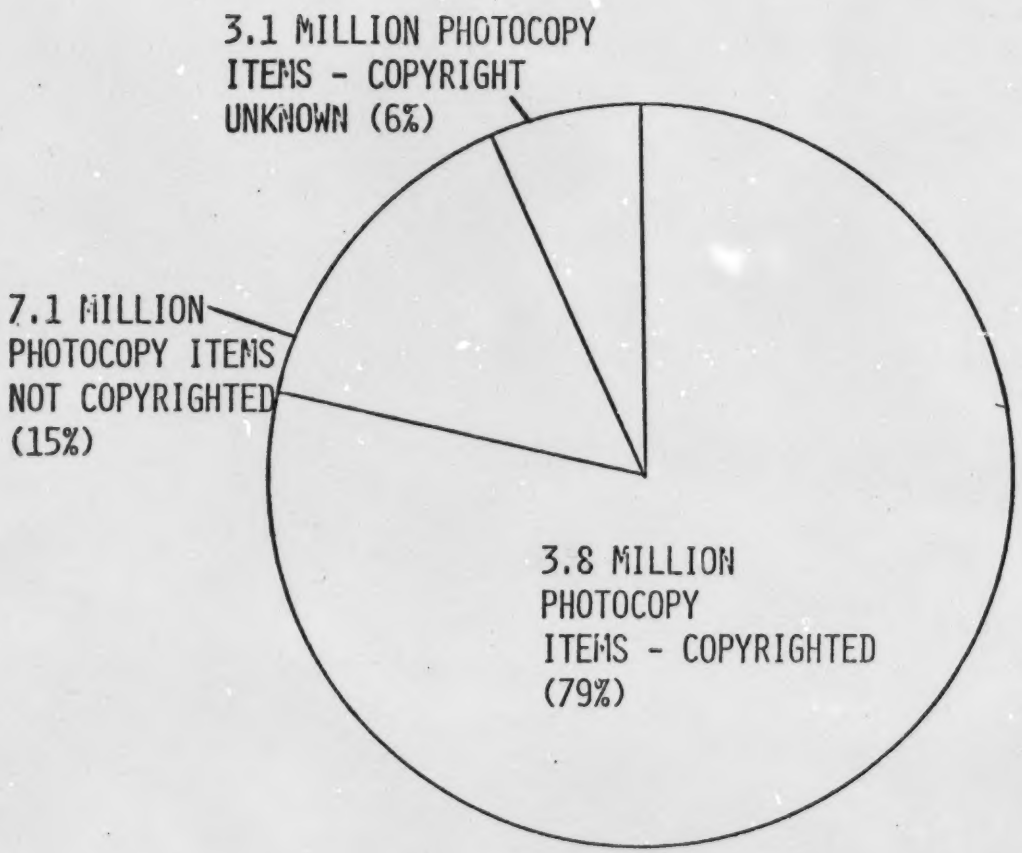
Our remaining discussion will focus upon the photocopying of serial articles, as measured in terms of photocopy items. Most discussions of royalty payments have focussed upon serials - in many cases, professional, scientific, and technical journals - but we note here that serials are obviously not the only items being photocopied in libraries, and that any payment mechanisms which might be developed may eventually need to deal with non-serial photocopying.

Figure 7 displays the total number of photocopy items of serials photocopied in the U.S. in 1976. As you can see, 38 million of these, or 79%, are copyrighted, with 15% not copyrighted and 6% with copyright unknown. We suspect that this 79% copyrighted photocopying for serials is a higher proportion than the proportion of serials actually copyrighted, but unfortunately we don't have available at the present time data on the copyright status of all the serials available for photocopying.

In Figure 8, we take these 38 million copyrighted serial photocopy items and apportion them by type of library. Public and Special libraries together account for the largest share, with 78% of the photocopying of copyrighted serials. Special libraries exceed Public libraries, 41% to 37%. Academic and Federal libraries account for smaller proportions, 12% and 10%, respectively.

In Figure 9, these 38 million copyrighted serial photocopy items are partitioned by the source of the transaction. Not surprisingly, the largest proportion of photocopying of copyrighted serials occurs for local users, that is, library patrons and library staff, accounting for 57%. Intrasystem loan and interlibrary loan follow. These are still gross, national totals, and they don't give any idea of the possible impact on an individual library basis of royalty payments for the photocopying of copyrighted serials. Figure 10 gives "per library" figures for copyrighted serials for photocopying for local users, intrasystem loan (ISL), and interlibrary loan (ILL). Federal libraries have the largest number for copyrighted serials per year, with 1,700 photocopy items for local users per library. If the national libraries were eliminated from this figure, the per-library figure would be much closer to the Special library figure, which is 1,100 photocopy items per library for local users.

FIGURE 7
NUMBER OF PHOTOCOPY ITEMS OF
SERIALS BY COPYRIGHT STATUS (1976)

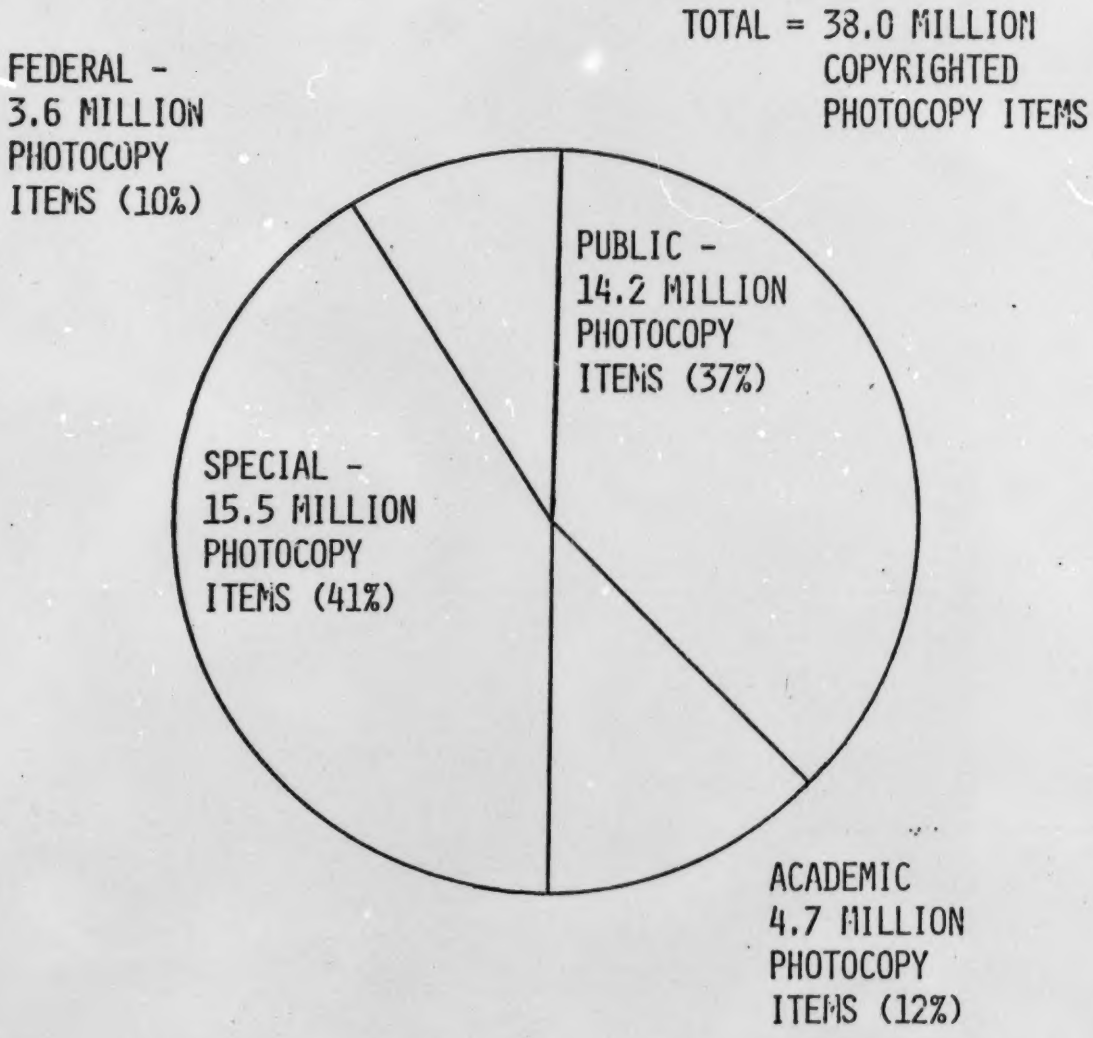

3.1 MILLION PHOTOCOPY ITEMS - COPYRIGHT UNKNOWN (6%)
7.1 MILLION PHOTOCOPY ITEMS NOT COPYRIGHTED (15%)
3.8 MILLION PHOTOCOPY ITEMS - COPYRIGHTED (79%)

TOTAL 48.2 MILLION PHOTOCOPY ITEMS

SOURCE: KING RESEARCH INC., NATIONAL LIBRARY SURVEY

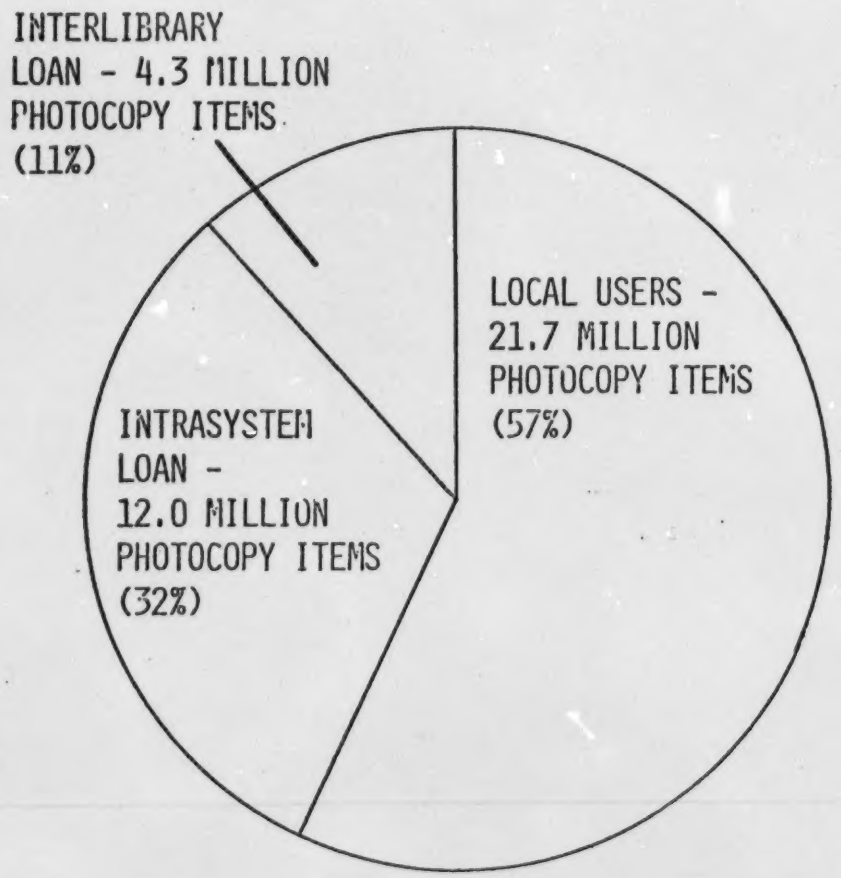
FIGURE 8

NUMBER OF PHOTOCOPY ITEMS OF COPYRIGHTED SERIALS, BY TYPE OF LIBRARY (1976)


TOTAL = 38.0 MILLION COPYRIGHTED PHOTOCOPY ITEMS
FEDERAL - 3.6 MILLION PHOTOCOPY ITEMS (10%)
PUBLIC - 14.2 MILLION PHOTOCOPY ITEMS (37%)
SPECIAL - 15.5 MILLION PHOTOCOPY ITEMS (41%)
ACADEMIC 4.7 MILLION PHOTOCOPY ITEMS (12%)

SOURCE: KING RESEARCH, INC. NATIONAL LIBRARY SURVEY

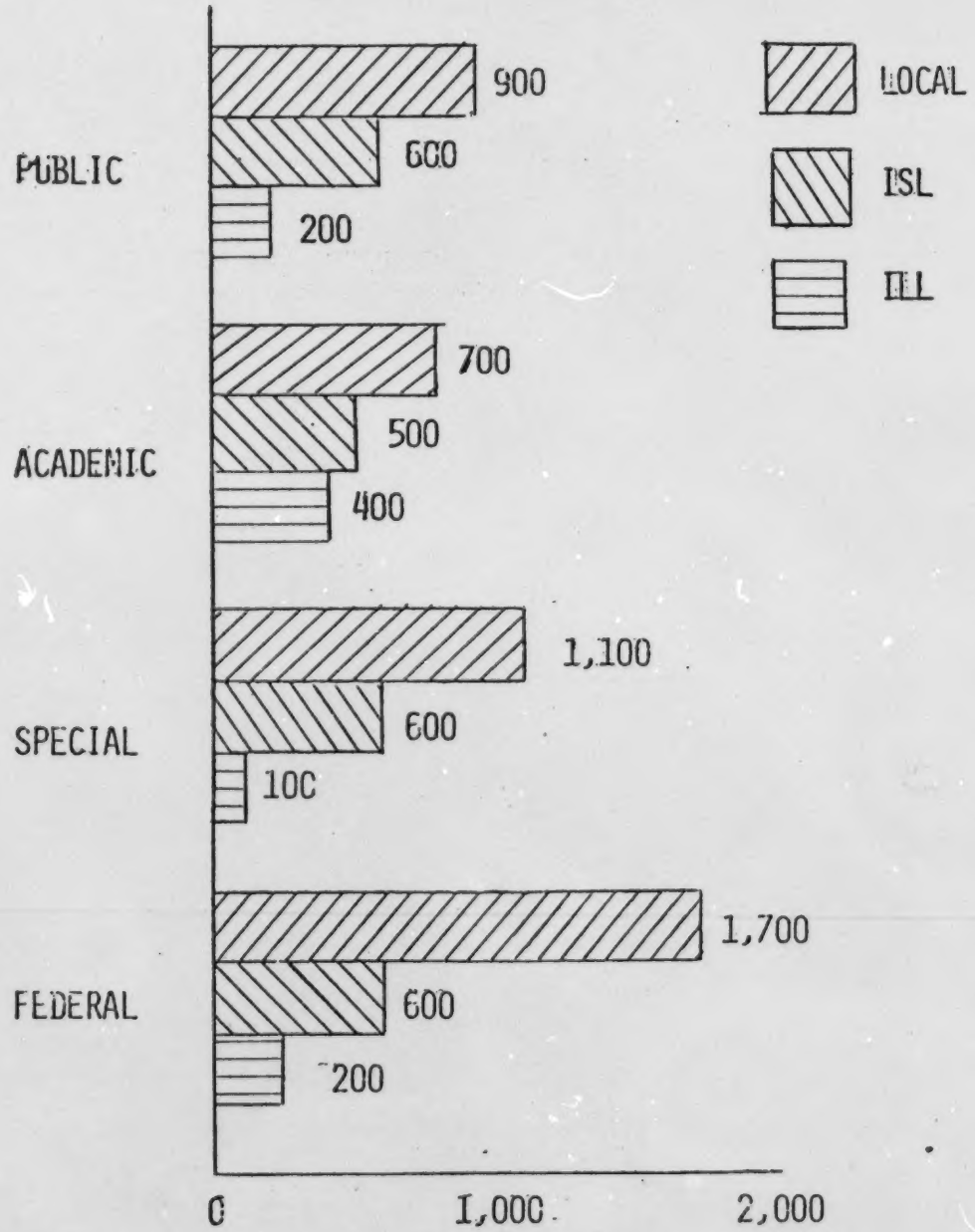
FIGURE 9
NUMBER OF PHOTOCOPY ITEMS OF
COPYRIGHTED SERIALS BY
SOURCE OF TRANSACTION



TOTAL = 38.0 MILLION COPYRIGHTED PHOTOCOPY ITEMS

SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY

FIGURE 10
COPYRIGHTED SERIAL
PHOTOCOPY ITEMS PER LIBRARY
BY SOURCE OF TRANSACTION (1976)



COPYRIGHTED SERIAL
PHOTOCOPY ITEMS PER LIBRARY

SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY

These figures are divided into Local, ISL, and ILL for good reason. Conceivably, local photocopying, interlibrary loan, and intrasystem loan might have to be counted separately for royalty payment purposes. The CONTU Guidelines, for example, specify what is and is not allowable for interlibrary loan purposes, not for the other two categories. Also, due to the possible development of specific definitions of library systems by CONTU, local photocopying might need to be differentiated from intrasystem photocopying. Finally, within each of these categories - local, intrasystem, and interlibrary - specific screening definitions must be developed to specify which photocopy items would be eligible for royalty payment. In other words, screening definitions would need to be applied to, say, the average 700 local user photocopy items per Academic library to determine how many of those 700 photocopy items per Academic library would actually be applicable for royalty payment.

Currently, screening definitions based on the CONTU Guidelines take into account the photocopy items requested and received by a library in response to interlibrary loan requests. Because of this, the requesting, not the photocopying library, would be liable for royalty payment. We have estimated that, if categories such as photocopy items made of foreign serials, serials over five years old, and those not made for replacement or classroom use, were excluded, approximately 2 million interlibrary loan photocopy items would be eligible for royalty payment. Finally, if, according to the CONTU Guidelines, only serial photocopy items received more than five times during a year from the same serial title were excluded, this number would be decreased to approximately 500 thousand interlibrary loan photocopy items per year which would be eligible for royalty payment. This is less than 1% of all photocopy items of library materials made in one year.

This figure would be different, of course, if the categories of eligibility were different. For example, inclusion of photocopy items more than five years old would increase the number of eligible interlibrary loan photocopy items to approximately two million per year.

We caution that these figures are not necessarily legally binding or based upon a definitive interpretation of the Copyright Law. However, they do

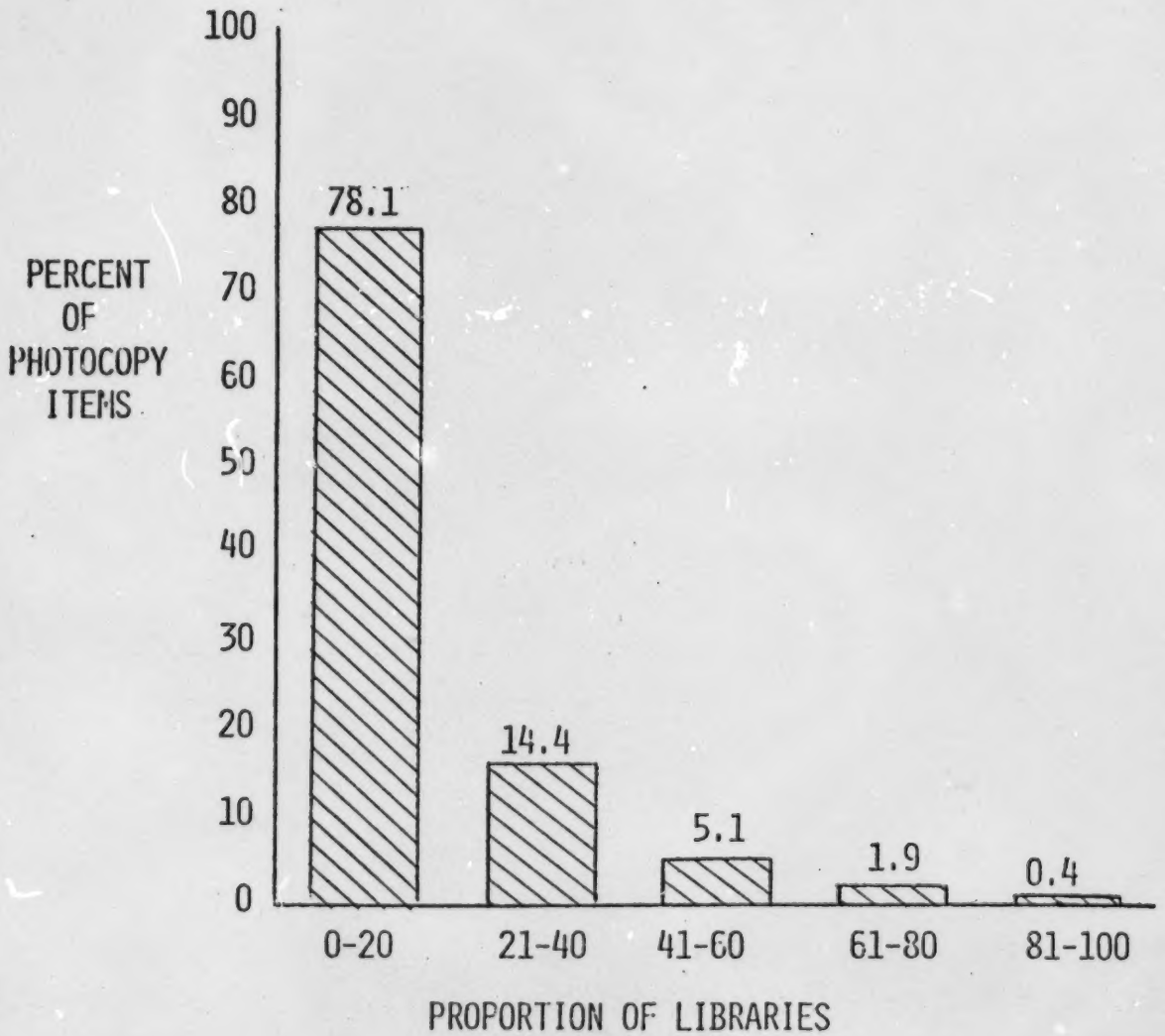
point out that exclusions from eligibility such as those based on intended use or those based on specific numeric or age limits may drastically reduce the number of serial photocopy items eligible for payment.

Because of continued uncertainty concerning royalty payment eligibility, it is difficult to be completely certain about the feasibility of various royalty payment mechanisms. Another significant factor is the distribution of photocopying across libraries. So far we have discussed photocopying volume in terms of totals and averages. In reality, heavy photocopying volume is concentrated among a relatively few libraries. This is demonstrated in Figure 11 for local user photocopying. Here we see that 20% of the libraries account for 78.1% of the photocopy items of library materials made for local users; the remaining 80% of the libraries account for 21.9% of the photocopying. This pattern is repeated for all types of library materials and also for eligible photocopying: a minority of libraries accounting for a majority of the photocopying. While this finding is certainly not unexpected, based upon our current knowledge of useage patterns, it implies that larger volume libraries will be the ones most affected by development of a royalty payment mechanism. We also note that a similar distribution also exists for individual serial titles and publishers: the majority of photocopying is accounted for by a minority of serials and serial publishers. The more stringent the screening of photocopying is, the smaller will be the number of eligible photocopies.

Taking the foregoing and other data from our study into account, the following are summaries of some of our conclusions and speculations concerning the feasibility of copyright royalty payment mechanisms:

It appears that no mechanism satisfies all needs. For example, a relatively large proportion of libraries prefer a mechanism which would operate through increased subscription prices, obviating the need for screening or accounting for individual eligible photocopy items. This mechanism, which is not highly accurate, may not be preferred by publishers, to whom the accuracy of a transaction-based mechanism might be a necessity.

FIGURE 11
DISTRIBUTION OF LOCAL
USER PHOTOCOPYING
BY PERCENT OF LIBRARIES



SOURCE: KING RESEARCH, INC., NATIONAL LIBRARY SURVEY

For any sort of mechanism which attempts to estimate individual libraries' eligible photocopying volume on a sampling basis, accuracy is difficult to achieve economically because of the highly skewed distribution of photocopies per title. However, libraries appear to be willing to trade off some accuracy for ease of administration.

Because of the low number of eligible photocopy items per serial for the majority of copyrighted domestic serials, and because of the potentially low proportion of eligible photocopy items at any one library, it may be more cost-effective, at least initially, for a central agency, clearinghouse, or payment center to serve high-volume serials and high-volume libraries. Over the long run such a facility might be advantageous to all libraries and serials depending on their needs and their internal capabilities.

The possibility of the development of competing mechanisms should not be ignored, especially in the case of existing interlibrary loan and document delivery services. It is conceivable that non-standardization of royalty accounting procedures and the lack of any central source for excess photocopying items, or photocopying licenses or releases would result in problems of access. If existing systems and services are to be adapted for royalty payment purposes, users would be helped if some sort of coordination or standardization existed.

If library compliance with royalty payment mechanism requirements is complex, more responsibility for access might be shifted to users. This might initially result in decreased access for users if some service restrictions are imposed. At the same time, it might help develop a market for information intermediaries or other document delivery services which do choose to comply with royalty payment requirements.

Monitoring or enforcing royalty payment is potentially one of the most expensive components of the development or a royalty payment mechanism. If monitoring and enforcement are desired by publishers, these functions would be most efficiently carried out by a central agency, assuming that legal questions such as antitrust are resolved, which appears to be the case.

Much depends upon the pricing mechanisms instituted by various publishers. Uniform royalty pricing would be easiest to adopt from the standpoint of libraries, and to a lesser extent by a centralized agency, but it may not be acceptable to publishers with different operational costs.

The actual impact of royalty payment mechanisms in terms of subscription cancellations is still uncertain. We hypothesize that, if this occurred, it would have the most negative impact on small, specialized journals.

"Screening" by a library describes two operations. The first is checking a request as it comes in for the type of user or type of request. The second screening operation requires file maintenance of some sort, to check for past requests for or photocopying of the same title. The latter is the more expensive of the two, whether it is done manually or by computer.